

CELL SEARCHING IN A
CDMA COMMUNICATIONS SYSTEM

ABSTRACT OF THE DISCLOSURE

A special coding scheme is disclosed for more
5 effectively acquiring a long code and frame timing during a
cell search in a CDMA communications system. A code set of
length M Q-ary code words including symbols from a set of Q
short codes is defined with certain properties. The primary
property to be satisfied is that no cyclic shift of a code
10 word yields a valid code word. The other properties to be
satisfied are that there is a one-to-one mapping between a
long code message and a valid code word, and a decoder should
be able to find both the random shift (thereby implicitly
finding the frame timing) and the transmitted code word
15 (i.e., its associated long code indication message) in the
presence of interference and noise, with some degree of
accuracy and reasonable complexity.